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WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

46148

MAY 5 - 1939

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REPORT FOR THE WEEK ENDING MAY 6, 1939

HAVRE:

Weather conditions during the week were somewhat unfavorable and varied, drying winds, low humidity, higher than normal temperatures, and light scattered thunderstorms occurring. The sky was obscured at times by a thick dust haze on three different days. A maximum of 94° April 29 exceeded the previous high temperature record for April.

Field work was uninterrupted, and a number of routine plantings were made, including safflower, sunflower, small grains for increase, first date of planting corn, and sweetclover. Row forages were also cultivated. Soil moisture samples were taken in the dry-land project and in the methods of fallow experiment, field B. Properly prepared fallow has a good reserve of moisture to at least 3 feet, but in other tillage methods the supply is quite limited. Spring wheat, oats, barley, and rye have emerged uniformly on fallowed and disked corn land, with rather irregular stands elsewhere. Strong winds damaged newly emerged seedlings, however, the injury does not appear serious.

Range livestock continue in good condition. Early native grass species have probably been checked beyond recovery owing to drouth. Calving is well along, and the new calf crop appears good boned and thrifty. Work horses received their first vaccination for sleeping sickness.

Maximum temperature, 94°; minimum, 32°; precipitation, 0.13 inch.

JUDITH BASIN:

The early part of the past week was warm and conditions were ideal for seeding. Thursday noon a rain of 0.26 inch was received. The remainder of the week continued cool and cloudy with occassional showers except on Saturday. The rain was local and proved to be a great aid, especially to grass, pastures, and small grains.

Favorable weather conditions advanced pastures rapidly, and the steers were weighed and placed on the bromegrass and native grass pastures on the 6th. The crested wheatgrass group was checked on the 1st and found to be making nice gains.

Drs. R. H. Bamberg and A. M. Schuehuber from Bozeman spent the first half of the week at the station assisting and supervising the planting of cereal project nurseries and varietal tests, and taking winterkilling notes on winter wheats.

On Tuesday the station horses received their 1st shot of serum for the prevention of equine encephalomyelitis (western strain).

Maximum temperature, 86°; minimum, 30°; precipitation, 0.35 inch.

HUNTLEY:

Good growing-temperatures have prevailed throughout the week, and all crops have made considerable advancement. Spring-sown small grains, flax, peas, sweetclover, and alfalfa have come up with good stands on all plots and appear to be off to a good start. Winter grains are also growing nicely, but soil moisture supplies have dwindled rapidly during the last few days to a point where good rains will be needed soon.

Preparation of land for corn, sorgo, and beans is being completed today. Reasonably good seedbeds have been obtained, but continued rainless weather will dry them out rapidly.

The first general round of soil samples was completed early in the week. Plots which produced a crop of small grain last year now show available moisture to depths of 10 or 12 inches, whereas land maintained in fallow is wet to depths of 18 to 24 inches.

Maximum temperature, 86°; minimum 34°; precipitation, 0.22 inch.

SHERIDAN:

Fair weather, with temperatures considerably above the seasonal average, prevailed over the week. All vegetation made good progress, with grain in most plots in the rotations up to a fair stand. Alfalfa sown in the new variety test April 26 began to emerge the middle of the week. Most fruit stock is now in full bloom. Hybrid cherries (Nicollett, Oka, and Champa) still remaining in the old fruit planting north of the buildings now appear to have been killed almost completely. Borer damage has been found in a few of the plums south of the railroad.

Spring plowing for grain in the rotations was completed early in the week, and the grain was sown. Plowing for corn and sorgo in the rotations, and the first tillage for corn and other late crops in other fields (plowing, duckfooting, or disking) was completed late in the week, except for two small blocks yet to be disked.

Mormon crickets have been reported thick in some nearby sections, and dusting operations have been started. Only a few crickets have been found over the most of the station, but one large band was found next the railroad and was dusted.

Maximum temperature, 86°; minimum, 35°; precipitation, trace.

DICKINSON:

A shower of 0.32 inch last night was followed by lower temperature. This has freshened up vegetation which was badly whipped and damaged some by a high wind and dust storm which preceeded the rain. Wind velocity reached 63 m.p.h. at the airport, 6 miles south of the station. The 24-hour velocity on the two foot anemometer was only 7.5 m.p.h.

Vegetation advanced rapidly because of high temperatures most of the week. Wheat, oats, and barley greened up rapidly with generally good stands on all plots and fields. Thick stands of weeds are also conspicuous, particularly Russian thistle, amaranthus, and chenopodium.

Flax and potatoes were planted on the rotations. Additional garden varieties were planted. A thousand red cedar and 300 bullpine seedlings were lined out from stock received from the Northern Great Plains Field Station.

Bloom opened the first of the week on early flowering varieties of plum, and as a result of the heat nearly all varieties are now in full bloom. Crabs and apples are starting to bloom.

A few young grasshoppers have been found about the station.

Maximum temperature, 87°; minimum, 39°; precipitation, 0.32 inch.

MANDAN:

Agronomy: The past week was hot and dry. A strong, hot wind blew on the 5th, but cloudiness and a light shower in the afternoon kept it from causing serious damage to small grain and grass seedlings.

Old fields of drilled crested wheatgrass are badly dried up in spots. Small grains have made a fair growth under the present conditions.

Blocks for corn and terraces in field P for Sudan grass have been plowed. The early planting of corn was made on the 3rd.

The total precipitation for April was 0.74 inch. The total for the year to April was 2.47 inches, compared to the 25-year station average of 2.87 inches.

Maximum temperature, 94°; minimum, 45°; precipitation, 0.08 inch.

Cooperative Grazing Experiment. Cattle for the grazing experiment were delivered at the pasture on April 29. They were branded on May 2.

Native pastures started an early growth of grass, but it has been checked by the drought. The prairies were generally green by May 1.

Crested wheatgrass pastures made a good early growth but now need moisture badly.

The early fall seeding of grass on fallow at the pasture came through the winter with a fair stand. Some of the grass did not come up until this spring, and these young seedlings cannot hold out much longer without rain.

Blue grama grass has made a nice start, but there is little chance for the heavy seed crop of last year to germinate unless a good rain comes soon.

Horticulture: Continued dry weather and high winds have been very trying to horticultural plants. Several days of unusually warm weather brought the fruit trees in bloom very rapidly. Crabapples, plums, small fruits, and native fruits are showing a heavy bloom, and will probably set a heavy crop of fruit as conditions for pollinating have been good. Rain however, is badly needed.

Hand crossing of fruits in the field has been in progress throughout the week. Water has been hauled to the nursery and to trees planted this spring.

The hot and dry weather during most of the week has forced shrubbery and tulip borders along at a very rapid pace. Spirea arguta, Golden currant, Hopa crab, and Syringa dilatata are at present in full bloom, with French hybrid, persean, and common lilacs about to open. Early tulips are in full bloom, Triumph tulips nicely budded, and Darwin tulips just showing buds.

Bluegrass lawns are greening up but showing need of moisture. Crested wheatgrass, Fairway strain, planted last fall about the new greenhouse addition, survived well and is looking very good at the present.

It is too dry for vegetables in the field. Early peas are up, but probably at a standstill. Onions and carrots are very spotty. Unless rain comes within a week there will be a very poor stand.

Asparagus, prize dry land vegetable, is coming along at a great rate. Stalks seem to make 8-9 inches growth over night.

Arboriculture: The various odd lots of tree planting in permanent plantings on the station have been completed during the week. The soil is extremely dry, which with the high temperatures and windy weather is going to result in heavy mortality in newly planted coniferous species. Lining out of coniferous seedlings has commenced and is in progress at the present time. A number of seedlings of cedar, blue spruce, and ponderosa pine have been planted in cans for the purpose of filling-in in station plantings next year. This method may give more satisfactory results in unfavorable years. Emerged tree seedlings are rapidly dying off for lack of moisture.

ARCHER:

During the fore part of the week the weather was clear and warm, but during the latter part it was threatening with light, local showers. These conditions were favorable for plant growth, however, winter cereals on land cropped to small cereals last year are showing drought spots. Crested wheatgrass is also showing drought spots. Winter cereals on fallow are making excellent growth as are also the native grasses. Barleys in the dairy fields have emerged, and good stands have been obtained. The wheat in the rotation plots is emerging. The trees are changing from a winter gray to a bright green.

Station activities consisted of cultivating trees, duckfooting and staking corn plots, cleaning yards, and repairing yard fences.

Maximum temperature, 76°; minimum, 37°; precipitation, 0.16 inch.

NORTH PLATTE:

A light shower fell early in the week, and fair weather prevailed throughout the remainder of the week. Precipitation for April was 1.30 inches which is 0.88 inch below normal. The winter wheat is well jointed and rye will be heading within ten days. The moisture condition of the wheat on fallow is good and will carry the crop for several days. There is some available moisture in the first two feet in the plots of wheat previously cropped to corn. Temperatures for the past two weeks have approached those of summer.

Plots for corn and sorghums were disked during the week. Spring moisture sampling has been completed.

Dr. Tysdal and Russel Garl of the College of Agriculture were at the station on Saturday to take care of their alfalfa projects. Mr. Herbert Brown of the Pillsbury Flour Mills at Atchison, Kansas, visited the station to inspect the wheat plots and reported that this crop at present looks as good at North Platte as anywhere he has visited in Nebraska or Kansas.

Maximum temperature, 87°; minimum, 47°; precipitation, 0.36 inch.

AKRON:

Local showers have not relieved a situation that can now be characterized as dry. The station recorded 4 trace falls in addition to the very small measurable amount. Fallow-seeded winter wheat on the station, and in the region is beginning to curl badly during the hot portion of the day. Thistles are becoming well established on the plots and fields of spring seeded grains.

Current field work included the cultivation of the fruit orchards and the new and a part of the old forestry plantings. The trimming and working-out of roadways was continued. First date seedings of beans and of millets were made on 2nd.

The first mocking bird made his appearance early in the week. There has been an unusual influx of red-wing blackbirds. A few doves are noticed. Apples and cherries are in full bloom by the week-end. Persian lilac is beginning to show purple.

Dr. Hurley Fellows arrived late this evening to resume his studies with the root rots of the cereals.

Maximum temperature, 87°; minimum, 40°; precipitation, 0.03 inch.

COLBY:

The weather has been dry, warm, and pleasant this week, except Friday when it was very windy and dusty all day and all night with some soil blowing. There is still an abundance of moisture in the soil so that nothing has begun to wilt yet. Pastures are generally green and show a marked increase in the stands of grama and buffalo grasses, also western wheat grass.

The spring small grains are continuing to make excellent growth. Winter wheat is making fair growth, but the stand is thinning out considerably due to cutworm damage. All the plots and fields on the station are badly infested with these pests. They seem to be as abundant and as damaging on the fallow plots, including the 4-year fallow, as on any of the plots. It looks now as though the stands would be completely destroyed on most of the plots. Those with the best winter survival are suffering the least from cutworm. Over this county thousands of acres of wheat and several fields of barley have already been distroyed by the worm. A number of farmers are reporting less of early planted corn also. The infestation this year is far more extensive than ever before. The worms now range in size from a quarter inch to an inch and a half in length. A number of grasshoppers, tiny and large, have shown up, also. Weeds are backward.

Maximum temperature, 85°; minimum, 45°; precipitation, none. Precipitation for April, 1.68 inches; precipitation for January 1 to April 30, 5.88 inches.

HAYS: (Report for four-week period ending May 6, 1939)

During the past four weeks climatic conditions and winter wheat prospects have made two radical changes. During the first two weeks five showers occurred, resulting in a total of 1.45 inches of precipitation. Since that time it has been dry, and during the last week it has been windy.

The prospects for a crop of wheat this year have not at any time been good because of the lack of subsoil moisture and a dry surface soil condition that prevailed from seeding time to late March. However, the rapid growth made during the first two weeks of April was the cause of new false hopes for a crop--hopes which have almost disappeared during the last two weeks of dry weather. A heavy south wind which has prevailed most of the past week has added greatly to the seriousness of the drought.

All wheat on cropped land is now badly burned and looking poorer every day. The prospects have been much better on fallowed land from the beginning although there was less than the normal amount of water stored there. Even on fallow there was not enough surface moisture at any time after seeding to permit the secondary roots to enter the soil before the last of March. At this time on the best fallow where there is available moisture to the depth of 5 feet it appears that the secondary roots which did not enter the ground before the last of March have not been able to penetrate deeper than 12 or 15 inches, and even here the root system is not very elaborate and it appears to us that part of the deterioration of the wheat on fallow at this time is due to the fact that even though there is sufficient subsoil moisture available to support and carry the plants through this period of drought the root system is not sufficiently large to gather from the soil as much water as is required by the plants. As a result the wheat on fallow is also beginning to burn and some of it quite badly.

Wheat on late prepared stubble land has been too thin from the beginning to offer much hopes for a crop. On early prepared cropped land the stand was thick enough to produce a fair crop and has reached a height of from 4 to 6 inches but now most of it is burned and looks brown. The wheat that has suffered most is that following peas turned under for green manure. On rye ground the wheat is suffering much more than that on fallow but not nearly as much as that on pea ground.

On fallow the wheat varies from 6 to 10 inches high and has remained in good condition longer than that on cropped land but it is now wilting very badly and even burning in spots on some of the plots. The only wheat that shows no signs of suffering from drought is that sown on three-year fallow, Rotation 570.

The conditions at this time are very similar to the conditions in 1927 when heavy winds, May 7 and 8, wiped away the last chance for a wheat crop in that year.

Winter rye which is about 6 inches high, has failed to tiller, shades about one-fourth of the ground and is burning very badly. It is being plowed under today.

Canada field peas are 4 to 6 inches high, without branches, very weedy, and also wilting badly.

Bromegrass seeded last year is nearly all dead, there being only an occasional surviving plant. Bromegrass seeded this spring still shows a fair stand but is suffering from drought and from weed strangulation.

Maximum temperature for the week, 87°; minimum, 44°; precipitation, none. Precipitation for April, 1.58 inches.

TUCUMCARI:

Rains on three days of the past week totaled 1.74 inches, making a total of 4.59 inches for the year to date, some 1½ inches above normal for the period. This is the first time since 1931 that precipitation has been above normal on this date.

Ranges are greening fast, fields will be cultivated to work down ridges and kill weeds as soon as the surface dries sufficiently, and no doubt many farmers will be planting early next week.

Work has included hauling rocks to form dams in tree rows, planting buffalo grass sods on pasture contours, repairing of poison bait spreaders, and general station clean-up.

Very little fruit, other than grapes, can be produced this year. Although apples and cherries bloomed after the last severe frost, very little fruit of either set. Grapes should be in bloom within a week.

Grasshopper poisoning progressed well the past week, delayed only temporarily in those parts of the county where rains occurred. Some 10 or 12 carloads of arsenite, bran, and sawdust have been received, and on a 14-hour run the WPA mixing crew has mixed 60 tons of bait per day.

Maximum temperature, 84°; minimum, 44°.

BELLE FOURCHE:

The weather during the week was dry and comparatively hot. The maximum temperature, 91°, on April 30 was the highest that has occurred in April in the 31 years of record at this station. Very high winds accompanied thunderstorms during the evening and night of May 5, and considerable soil blowing took place, but occasional light showers checked the soil movement somewhat.

The precipitation for April, 0.67 inch, was 0.89 inch less than the 31-year average for the month, and the total for the year to date is approximately 1.5 inches below normal. No precipitation in amounts beneficial to plant growth has been received since May 31, 1938.

Owing to the lateness of the season, spring wheat, oats, barley, flax, field peas, and sweetclover were finally seeded in dry soil. Plowed land is rough and clodcy, and some of it could not be reduced to a satisfactory condition for seeding, but fallow and corn-stubble plots are very susceptible to blowing because of the dust-like nature of the seedbed. Drill furrows were partially leveled by the wind on May 5, but no soil blowing occurred on the rotation field, although considerable additional soil from adjacent fields was deposited on 8 of the fall-seeded grass plots, and further reduced the stand of grass.

Maximum temperature, 91°; minimum, 41°; precipitation, 0.05 inch.

GARDEN CITY:

The rainfall this week amounted to 0.02 inch, which was the first measurable precipitation since April 10. April was considerably below average, for only 0.40 inch of moisture fell and the average is 1.65 inches. Total precipitation for the first four months was 2.74 inches, and the average is3.38 inches. There was very little dust this week, except for Saturday evening when a "bad" storm came in from the northwest.

The wheat continues to decline, and some of it is probably injured to such an extent that it would not recover if rains were received. However, there are some scattered fields south of here which appear to be standing the drought fairly well.

Field work consisted of plowing and listing plots as scheduled.

Maximum temperature, 88°; minimum, 47°; precipitation, 0.02 inch.

DALHART:

Seedbed preparation for sorghum variety and increase fields was started during the week. There is ample moisture in the soil to do a good job of deep plowing. The plowing is being done with a tractor attached 2-way plow, and an excellent job is being done. Other work during the week has consisted of a continuation of the removal of sand accumulations from trees and shrubs.

Winter wheat on the station is now apparently past recovery. Most of the rye seems to be in the same condition. Commercial fields of wheat show good growth for the year, but many of them seem to be injured beyond recovery.

A trip to a ranch this afternoon showed excellent grass except where adjacent to farm land. Apparently the grass is much farther advanced for this time of the season than has been the case for a number of years.

Maximum temperature, 81°; minimum, 45°; precipitation, 0.45 inch.

BIG SPRING:

Soil moisture conditions were improved somewhat during the week by three showers totaling 0.73 inch. As this wet the soil down only about 5 inches, it was not considered enough to justify planting. There were several scattered rains over the county varying in amounts from a sprinkle to 3 inches. Reports indicate that about a fourth of the county has sufficient moisture for planting purposes, while the remainder will have to wait for another rain.

Disking plots in the rotations was completed, and the cooperative field was disked and harrowed during the week. Other work consisted of planting the grass nursery, treating cotton seed, and hoeing weeds.

Maximum temperature, 92°; minimum, 55°; precipitation, 0.73 inch.

LAWTON: (Report for the 2 weeks ending May 6, 1939)

The drought period extending back to June 25, 1938 continues with disastrous results to small grain production. From July 1, 1938, to April 30, 1939, the precipitation was approximately half of the 65-year average.

April weather was distinguished by many windy days, maximum temperatures of 92° to 95° and a monthly precipitation of 0.31 inch. Ten counties in the southwestern part of the State receiving approximately ½ to ¾ inch of rain during the past month constituted the dryest area in the State.

Winter oats throughout the southwestern part of the State are a complete failure. If there is any production of spring oats, the yields will be very meager and widely scattered. Early seedings on well prepared seed beds still have a chance to produce some grain. Reports from nearly every part of the state indicate that the wheat crop has but little possibility, even in areas that have been the most promising all spring. In the southwestern and western parts of the State most of the wheat is beyond recovery.

On the station, the possibility of a light yield remains on some of the rotation plots of wheat, oats, and spring barley. In the variety tests of wheat, winter oats, and winter barley and spring seedings of oats that include rate and date work the crops are not badly burned, but the effects of drought are sharply manifested by stunted plant development. These crops are growing on basin listed fallow that stored lots of water in the first 6 months of 1938. Early Blackhull is fully headed as well as nearly all the winter oats varieties. Early spring seedings of oats have been heading for some time.

Many fields of wheat have been observed and examined in adjoining territory. Early Blackhull is the only thing that has headed. Wheat on the lower side of the fields and on creek bottom land is invariably burned beyond recovery. On the hill sides it is frequently green. Stands and plant development in both instances are much alike. In no case does the wheat plant have a root system that could draw moisture from the subsoil if it were present.

Farm operations are at a standstill. Sorghum and cotton planting are wholly impractical until it rains.

WOODWARD: (Report for the two weeks ending May 6, 1939)

The temperature has been somewhat high for this season, ranging from the high seventies to the low eighties, with a maximum of 84°. It has been very dry with no precipitation between April 14 and May 6, and with no precipitation in sufficient quantity to be of more than temporary benefit since April 6. Five days during the two-week period the wind velocity has been rather high, ranging between 13.5 and 17.6 for 24-hour periods.

Wheat on the station is in most cases looking fairly good, but is beginning to show some effects of drought. Visitors report that wheat is suffering in practically all directions from here and that close to Woodward it looks better than in other places.

Work on the station has consisted of watering grass plots to insure emergence, planting grass on flood control dam, planting of perennials, tree and shrub seed beds, grading roads, and cultivating plot alleys.

The spirea bloomed the best that it has in years, and while there has been some iris in bloom almost continuously since the middle of March, the later varieties are making a good display at present. Due likely to better moisture conditions last summer, they are also making a better display of bloom than usual.

Station visitors have included the following, all of whom came to attend Mr. Chilcott's funeral: F. P. Eshbaugh, Hays, Kansas; Karl Venneberg, Hays, Kansas; F. A. Wagner and Howard Haas of Garden City, Kansas; Joe B. Kuska, Colby, Kansas; W. M. Osborn, Lawton, Oklahoma; Dr. Lippert S. Ellis, Dr. W. B. Gernert, and Dr. H. F. Murphy of Stillwater, Oklahoma; Hunter Hayes, Ardmore, Oklahoma; B. F. Barnes, Dalhart, Texas; D. R. Burnham, Tucumcari, New Mexico; James E. Smith, Jr., Amarillo, Texas; Clarence Brittain, Guymon, Oklahoma; Dr. John H. Martin, Hon. Phil Ferguson and O. R. Mathews, of Washington, D. C.

An announcement in memorandum to field men on May 1, Ellery F. Chilcott, Superintendent of the station since it was established in 1914, died the night of April 30 as a result of an automobile accident on April 23. Mr. L. E. Locke has been designated acting superintendent of the station for the present.

Mr. Mathews is remaining at the station for a short time.

PENDLETON: (Report for the month of April 1939)

The weather during April was moderate and generally favorable for field work. Most of the farmers in the Columbia River Basin completed their plowing for fallow during the month. Precipitation during the month was below the 10-year average, mean temperature was normal. According to reports this section of Eastern Oregon is one of the most favored this year in regard to moisture conditions for wheat production, the counties to the west are in immediate need of rain, some burning of the fall sown wheat has already occurred on the shallow lands. Land cropped to wheat in 1938 is well supplied with moisture to a depth of at least 5 feet, and land fallowed in 1938 has all the moisture it can hold to a depth of 6 feet. A very fair crop of wheat could be matured in this section without any further rains. Winter wheat in this section is in very good condition with good stands, fine color, and about ready to head out. Spring sown crops emerged about April 10 with good stands.

Livestock men report range conditions the poorest in years, the native grasses making very little growth this spring. Sheepmen in the Heppner section are driving their sheep to the mountains earlier than usual.

One hundred fifty one acres of land has been leased from the local Indian Agency for 50 cents an acre annual rental for morning glory control demonstrations. The Oregon Experiment Station and Extension Service and the Indian Service are cooperating in the work. The last session of the Oregon Legislature appropriated a considerable sum of money for studies in the control of noxious weeds in Oregon. A portion of this money will be expended in this county. The tillage operations will be supervised from this station. For the tillage work a Farm-All F-20 tractor and a Dyrr cultivator were purchased with weed control funds.

Maximum temperature, 84°; minimum, 21°; precipitation, 0.66 inch. Mean temperature, 49.9°; precipitation, Sept. 1 to April 30, 10.98 inches. 10 year average, 11.17 inches.

PENDLETON:

Dry weather still prevails in this area, unless good rains are received very soon some sections will have a very short grain crop. Forage grasses have made very little growth this season, stockmen are complaining of lack of feed already. Wheat on the station is still in excellent condition with sufficient moisture in the soil to mature a very fair crop of wheat. This section is in better condition in moisture than any other county in Eastern Oregon.

Mormon crickets are causing concern in some sections, they have been found in several wheat fields not far from the station. It is reported that portions of the mountain ranges are heavily infested with the crickets. Control by dusting on the mountain ranges is difficult because of the topography of the land. Control measures are under the supervision of a Federal entomologist, with the counties or State furnishing material and labor.

Maximum temperature, 80°; minimum, 28°; precipitation, none.

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REPORT FOR THE WEEK ENDING MAY 13, 1939.

HAVRE:

Dry weather continued, with only 0.14 inch of precipitation thus far in May. Temperatures were slightly lower than those of the previous week. Strong winds on two days damaged crops in certain localities. On Monday afternoon, following a severe wind, an unusual dust cloud reduced visibility at times to one-tenth of a mile. A grasshopper infestation somewhat spotted in character is now appearing.

Field work was devoted to planting corn and potatoes and fallowing. Forage nurseries were cultivated, and land was prepared for planting grass and alfalfa projects if rains occur. Soil samples recently taken showed a good reserve of moisture in May-fallow, continuous cropping being somewhat deficient. The preparation of fallow on the general farm was completed under conditions too dry for satisfactory plowing or cultivating.

A row crop tractor and grain drill were recently purchased for work in the experimental field.

Maximum temperature, 75°; minimum, 29°; precipitation, 0.01 inch.

JUDITH BASIN:

The first two days of the week with 0.57 inch of rain brought the total for May to date to 0.89 inch. This proved beneficial for all spring sown plantings and resulted in uniform emergence with almost perfect stands. The week has been characterized by low wind velocity with temperatures very moderate during the day and with nights being cold. Only two minimums during the week were above 32°.

Mr. Wayne W. Austin, Assistant Regional Nurseryman of the Soil Conservation Service, spent the first half of the week seeding and supervising the extensive cooperative forage plantings. Twenty-five C.C.C. boys from the Lewistown Camp assisted with that seeding. Old forage nurseries were also cleaned and weeded by them. Mr. Parkinson, C.C.C. Camp Superintendent, made an inspection visit while the boys were working.

Other station work consisted of making the second seeding of some garden varieties, replacement and potting of 300 cedar seedlings received from the Northern Great Plains Field Station, seeding of crested wheatgrass on highway road banks fronting the Station, seeding sweetclover varieties, seeding flax in the rotation plots, and trimming rotation plots.

Mr. Woods of the Chemistry Department of Bozeman visited the station on Wednesday to apply fertilizer to the pasture enclosures. Extension Agronomist Ralph D. Mercer made an official call on the 10th.

The hedges of caragana on the grounds have leafed out and many have begun to bloom. Early tulips in the yards have been in full bloom.

Maximum temperature, 64°; minimum, 27°; precipitation, 0.57 inch.

HUNTLEY:

Relatively cool weather prevailed throughout the week with frost recorded on three days. Little frost injury to crops has been reported locally, however. Wind velocity has been low, and skies have been cloudless most of the time, but visibility was reduced on three days as a result of high-blown dust clouds, said to have originated in Canada.

Crops have made little advancement during the week as a result of the colder weather and depleted moisture supplies. To date, the older plantings of crested wheatgrass are the only plots showing serious drought injury. Much of the growth on these plots is turning brown and curling up.

Preparation of cornland was completed during the week, and the crop was planted. Miscellaneous plantings of annual sweetclover and alfalfa were also made. Hogs were weighed and placed on the winter rye and alfalfa pastures on the 10th.

Maximum temperature, 78°; minimum, 28°; precipitation, 0.04 inch.

SHERIDAN:

Although considerably colder than last week, with a killing frost on the 8th and light frost the last two mornings, temperatures over the week were still slightly above the seasonal average. A heavy fall of fine hail on the 7th, accompanied by a high wind, but lasting only a few minutes, set most grain back about a week and badly damaged tender vegetation such as garden crops and alfalfa and grasses that were just emerging. The frost of the 8th badly wilted alfalfa in spots and probably killed most fruit blossoms. A light shower late in the week was of some benefit in softening the crust so that more of some crops could emerge.

Station work over the week consisted mainly in hauling manure, shearing and weighing sheep, and hoeing shelterbelts. Grass rows in the S.C.S. fall sown grass rows were cultivated. Wheat and barley on spring plowing in the rotations have just fully emerged, and oats are beginning to show.

Much of the winter wheat still continues to make very slow progress and, although the stand is good, is becoming quite weedy.

Although moisture still remains sufficient for the immediate needs of crops on the station, the most of this section is getting quite dry, even on the surface. There is no reserve in the ground for use as crops and grass begin to use more water, and rain is badly needed generally.

Maximum temperature, 72°; minimum, 29°; precipitation, 0.54 inch.

DICKINSON:

Lower temperatures most of the week was more favorable to grain crops, but lack of moisture and damage by soil blowing reduced the prospect on many fields. Some fields are also being damaged by grasshoppers at an unusually early date.

Winter wheat and winter rye on the rotations now are more promising than spring grains. Winter wheat seeded with the furrow drill in grain stubble has a better stand and growth than that seeded in corn stubble or standing cornstalks.

Grasses in solid stands are showing effect of drought.

Corn and millet were planted on the rotations. The rotation plots were trimmed.

Little damage seems to have resulted to fruit or other vegetation from the frost of 25° on the morning of the 11th.

Visitors included: Dr. J. R. Parker, E. G. Davis, and Fred Butcher of the Bureau of Entomology; Mr. Rector and Victor Lundeen of the A.A.A.; G. N. Geiszler, Ext. Soil Conservationist; and U. J. Downey, District Supervisor F. S. A.

Maximum temperature, 84°; minimum, 25°; precipitation, none.

MANDAN:

Agronomy: The past week continued dry, but the weather was cool. Spring sown grains are not making much progress at present. Winter rye has dried up to a marked degree on most plots. Corn ground has been prepared for planting. Crested wheatgrass in the drilled fields dried up more during the week, and now only a few spots of green appear.

Maximum temperature, 70°; minimum, 29°; precipitation, 0.01 inch.

Cooperative Grazing Experiment. The cattle were started on their pastures during the week. It is the earliest the grazing season has opened on the pastures.

Native vegetation made about a normal start of growth this spring, but it is making little progress at present and is dried up in some places.

The crested wheatgrass pastures were in good condition for grazing during the past week in May, but are now badly dried up, except in the lower places.

Horticulture: While the weather has been suitable for pollination, rain is now needed if further spring killing is to be avoided and if a good crop is to be produced.

Potatoes were planted on May 11 and 12. The usual variety test, spacing experiment, and nursery were planted. Also included was a tuber unit increase field. It is doubtful if the potatoes will come up until rain comes as the soil was very dry.

Cherries resulting from hand pollinating work in the greenhouse have been harvested. A considerable number of widely crossed fruits were assured, sandcherry, pincherry, and P. tomentosa being the male parents.

The first hoeing of the season is in progress.

The dry weather continues and the soil in the vegetable field plots is now too dry for germination or the growth of sorts already up. The second planting of vegetables in the acre garden and setting out of early cabbage and cauliflower was completed the 11th.

Lawns are drying up but the shrubbery and tree groups, perennials, etc., are still holding their own. It is a "lilac year"; several seasons have elapsed since this beautiful shrub has been so loaded with blossoms as at the present time. A newcomer, the Syringa dilatata, is proving a great acquisition to species already growing on the grounds. The blossoms, while somewhat limited in color variations, mostly shades of pinkish lilac, almost completely cover the bush and it is besides the earliest species to blossom.

Asparagus is showing the effects of the dry weather, stalks being thinner and less profuse. The yield is still good however, and the quality excellent.

Arboriculture: Lining out of coniferous seedlings has been carried on during the week and is now practically completed. Emerged seedlings are continuing to suffer from drought and windy weather. It is very difficult to believe that anything can remain in the line of seedlings if the drought and wind continue much longer.

ARCHER:

During the greater part of the week ending May 13 the weather was warm, however, during May 11 and 12 it was misty and threatening. Plant growth was satisfactory, but a good rain would greatly improve crop conditions.

The rotation corn was seeded during the week, and corn seeding in the dairy field was started. Under the direction of A. D. Ellison the Conservation sheep pasture experiments were laid out and the various treatments accomplished.

The station sheep were sheared May 12.

A. D. Ellison, Harold Bindschadler, Norman H. French, Fred Olsen, Abe McLaughlin, and Oscar K. Barnes of the Soil Conservation Service spent the greater part of three days at the station in the interest of the Conservation sheep pasture experiment.

Maximum temperature, 78°; minimum, 29°; precipitation, 0.41 inch.

AKRON:

It was cool enough this week to necessitate rekindling of house fires. This was very favorable to crops forced to suspend growth. Beginning Wednesday afternoon a very cool, damp wind started from the east to continue on to Friday evening. The sky soon became overcast with low-hanging, black clouds that brought hopes for a drizzling, soil-soaking fall of rain. However, Saturday opened with high flying, scattered comulus clouds indicating the probable clearing-away of the storm situation. Now near the middle of May with a total of only 0.89 inch of precipitation since March 31. Fallow seeded winter wheat is now showing yellow, and spring grains while not burning are now filled with thistles probably able to compete with the crop if and when rains do fall.

Deciduous trees are leafing-out slowly and spottedly. Evergreens have started no spring growth. Sod grasses have greened, but produced no appreciable top growth. Persian lilacs have been the show spots among the foundation plantings during the past week. Myriads of small grasshoppers can now be flushed along fence rows, and from undisturbed lands.

Mr. J. J. Curtis arrived Tuesday and supervised the threshing of last year's sorghum nursery grain, and the seeding of the hybrid corn variety experiment. Alleys between winter grains were cultivated. Some additional blocking-out in the cereal nursery was also accomplished.

Mr. W. J. Henderson, Extension Plant Pathologist, called Tuesday and found Hurley Fellows' work very interesting. Milton Nelson, local County Extension Agent, brought his successor to the station Friday to make the acquaintenance of the station personnel.

Maximum temperature, 87°; minimum, 33°; precipitation, 0.06 inch.

COLBY:

The weather this week has been rather variable. Part of the time it has been warm and windy with some soil blowing. Tuesday it was hot and calm. The last two days have been cold and rainy, but not much rain has fallen.

The rain was timely for the wheat crop. Many of the fields of good wheat were beginning to show a lack of moisture. The thin wheat and the late wheat did not show a lack of moisture as yet, but show continued thinning out by cutworms. Most fields are very patchy and many have died out completely due to cutworms. The cutworms are also continuing their ravages in numerous barley fields. They appear to be present in practically all fields, but not in as great numbers as the extent of the damage would indicate. In very few cases can one find more than three or four to the square foot. Except for the cutworms the barley is doing nicely. The pastures look better than they have for years.

On the D.L.A. project all plots of winter wheat are still being thinned by the cutworms. No damage has shown up on the spring small grain plots. They are all making excellent growth. The manure was spread on the milo and fallow plots yesterday. The blow furrows which were run in the alleys and roadways last fall are being leveled today. Weeds are not very numerous.

Maximum temperature, 90°; minimum, 38°; precipitation, 0.33 inch.

TUCUMCARI:

Following rains totaling 1.74 inches last week, good progress has been made in preparing plots and increase land for planting. Spring plowing was performed, manure applied to several plots, and some 60 acres of early listed plot and increase land was leveled. Grasses were seeded at varying rates, under various methods, and on land of dissimiliar cover and previous treatment.

Farmers in this locality are planting row crops as rapidly as possible. With the exception of grasses, no station planting has been performed.

Wind movement has been normal; temperatures early in the week were high, with clear skies; much lower temperatures and cloudy days have occurred the latter part of the week, with only a trace of precipitation.

Maximum temperature, 88°; minimum, 42°; precipitation, trace.

DALHART:

Plowing was continued during the week. There is still sufficient moisture in the surface soil to permit a good job of plowing being done. Other work for the week has consisted of watering the 1939 replants of trees, shrubs, and vines, cultivating to destroy rye in some of the tree plantings, and removing clumps of rye from vineyard and nursery rows.

Some impatience is being shown by some farmers who would like to start planting while they have moisture to insure getting a stand of row crops. Very little planting is being done, however. It is now planned to omit again this year the scheduled May 15 date of planting on the station; this decision is based chiefly upon the condition of surrounding fields.

Wheat in this area continues to suffer more every day except in a few localized areas where moisture was received this week. It is now nearly certain that no wheat can be produced on the station this year.

Maximum temperature, 84°; minimum, 40°; precipitation, 0.15 inch.

BIG SPRING:

Heavy rains have been reported in the southern part of the county on two occasions during the past week, but only light showers were received at the station. Wind velocity has been rather low, but temperatures have played between the two extremes. The maximum reached 102° on May 10, which is high for the year so far, and today (Saturday) the minimum dropped to 48° with a cold north wind blowing.

Station work consisted mainly of disking, harrowing, and staking the cooperative field in preparation for making the May 15 date of grain and forage sorghum variety-date planting. The rotation field was also harrowed and is now ready for staking.

Maximum temperature, 102°; minimum, 48°; precipitation, 0.07 inch.

LAWTON:

Drenching rains covered Oklahoma pretty generally during the past week with the greatest benefit accruing to the eastern half of the State, and the least to the southwestern part, where precipitation was spotted and usually light. In the vicinity of Lawton three showers, 0.20 on the 7th, 0.08 on the 10th, and 0.39 on the 12th, a total of 0.67 inch provided only temporary relief to small grains, native grasses, and legumes. A high wind velocity obtained on 5 days and temperatures varied widely, ranging from a maximum of 99° to a minimum of 47°.

Wheat in the variety test has made considerable progress in heading. Some of the winter oats varieties are showing the first ripe kernels, and spring seedings are nearly all headed. Wheat, oats, and barley average 20 to 24 inches in height, and leaf rust is almost entirely absent. On adjoining farms a light yield of volunteer oats is being combined, but such fields are very rare.

Just a very few fields of cotton have been planted and emergence is slow and irregular.

Moisture conditions continue insufficient to warrant planting of cotton and sorghum projects on the station. Several types of weeds with tap roots persist in growth, and further tillage is necessary to keep the land in shape for planting when there is sufficient moisture.

WOODWARD:

Wheat prospects on the station remain favorable. The rain of 0.45 inch on May 7 followed by cool weather later in the week relieved conditions that were becoming critical. A rain of 0.71 inch on the 12th should enable wheat to head without drought damage. Much of the wheat is in the boot. Some early planted wheat in the rate and date of seeding project was firing before the rain on the 7th. None of the late planted wheat fired, although its growth was checked.

Much of the grass in the irrigated section of the regrassing experiment emerged to good stands. Some areas where a satisfactory stand did not emerge were replanted during the week. Buffalo grass sod in strips was planted on the small dam back of the superintendent's residence, and on the area above the rock facing on the Spring Creek dam.

Installation of pumps and motor at the storage reservoir was completed, and one of the pumps was put in operation. It supplied ample water for fifteen of the large sprinklers.

The tomatoes in the variety and fertilizer blocks were set out during the week. Tree cuttings were moved to the field from the greenhouse.

The range school for range examiners and A.A.A. supervisors from western Oklahoma was held at the field station on May 6. About 100 ranchers and officials studied the grass improvement work on the field station and on neighboring ranches. A group of ecology students from the Fort Hays Kansas State College, with Dr. F. W. Albertson in charge, spent Friday at the station.

M. A. Hein, Division of Forage Crops and Diseases, and Grover B. Hill, In Charge of the Southern Section of the Range Division of the A.A.A., were station visitors.

Maximum temperature, 89°; minimum, 42°; precipitation, 1.16 inches.

GARDEN CITY:

One rain was received this week, which brought 0.32 inch. Temperatures were rather low except for one day when the maximum reached 90°. There was only one day during which there was dust in the air and that was not severe.

Most of the wheat on the project is burned brown, and the chances for a crop are very small. A general field on the station which had been fallowed for two years is in very good condition and will no doubt produce grain unless something unexpected happens.

Station visitors were R. I. Throckmorton, Head of Agronomy Department, Kansas State College, and J. H. Parker, Director of Kansas Wheat Improvement Association.

Maximum temperature, 90°; minimum, 37°; precipitation, 0.32 inch.

BELLE FOURCHE:

No precipitation was received during the week, and the weather was moderately cool. Light frost occurred on May 7 and 12, but no damage was done to crops. Wind borne dust, reported to be from Canada, filled the air on May 9 and 10, and reduced the visibility to about 1 mile.

Owing to the severe drought, range lands and non-irrigated pastures remain dry and brown, except for some green growth in coulees and low land benefitted by drifted snow or run-off water. The shortage of feed on the ranges is becoming serious, and livestock men are making plans to move their stock.

Grain seeded on the rotation field last week is coming up on a few limited areas favored by winter snow drifts, but there is very little growth elsewhere, and most of the plots are practically bare. Apparently there will not be more than a 30 percent stand of spring grain on any plot. Winter wheat seeded in standing corn stalks is growing rapidly, but fall grain seeded in small grain stubble is making slow progress. Grasshoppers are hatching in large numbers, and from all present indications the pests will be much more numerous than last year.

Maximum temperature, 73°; minimum, 31°; precipitation, none.

HAYS:

It has been part cloudy and cooler all week except for one day of high temperature. The cooler weather and two light sprinkles of rain temporarily reduced the agony of the wheat to some extent. The stalks that are still alive pushed upward partially hiding some of the burned foliage, which improved the general appearance as viewed from a distance, but the live stalks are very thin and none too vigorous. In other words the wheat has suffered less during the last week. It still looks pitifully bad on cropped land. On fallow it has held its own, possibly has made a slight gain.

Observations made by digging in wheat on fallow indicate that on ground that was wet deeper than 2 feet, the wheat roots have throughly permeated the first foot of soil and have traversed the second foot (have not filled it so throughly as the first foot) but very few roots have entered the third foot of soil. It seems the secondary root system which started about April 1 and developed since that time is only as large now as it generally is by December under normal conditions. The delay in development of the secondary root system was due to the fact that the secondary roots were unable to penetrate the dry surface soil until the last of March or first of April. Now in the case of the wheat that germinated in the fall and was supported by the primary root during the winter, we have a 30-weeks old plant on a 6-weeks old root which is small and unable to extend itself rapidly enough, even in soil having available moisture, to gather sufficient moisture to take care of the top growth when the atmospheric conditions are severe. Oats and barley do not look as good as a week ago. Considerable burning has occurred.

Maximum temperature, 90°; minimum, 39°; precipitation, 0.10 inch.

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U. S. DEPARTMENT OF AGRICULTURE

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MAY 20 1939

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REPORT FOR THE WEEK ENDING MAY 20, 1939.

HAVRE:

Scattered thundershowers occurred late in the week, but precipitation was insufficient to break the drought.

Winter rye is heading very short and in need of moisture. Lower leaves of winter wheat, continuously cropped, are firing, and prospects on fallow are not so promising as earlier in the month. Spring planted small grains on well prepared fallow still appear to be holding on. Grain sown on plowed or disked stubble land has not even sprouted in many places. Corn is also germinating except on fallow and in favored locations.

The corn breeding nursery was planted, and other routine dates of seeding were made. Fall-plowed and laid-over green manure fallow received a first cultivation for control of weeds. Most plantings of crested wheatgrass have about dried up. Alfalfa and sweetclover are likewise making slow growth.

Cleaning grounds and pruning horticultural plantings are in progress. Several caragana hedge rows were set out and watered. Body measurements of various age classes in the beef cattle herd were taken, and hip number branding for identification was completed.

Visitors included Dr. H. B. Mills, State Entomologist, and F. M. Harrington, Horticulturist, both of Montana State College.

Maximum temperature, 86°; minimum, 45°; precipitation, 0.13 inch.

JUDITH BASIN:

The week was cloudy and cool. Rains during the week were very spotted. On Friday we received 0.40 inch of precipitation. Wind velocity has been generally low for this time of the year.

Pastures are in excellent condition and there is an abundance of feed especially on the bromegrass and crested wheatgrass pastures.

Preparation of rotations and bulk fields for corn is about completed and some plots are seeded. Good moisture should enable corn to emerge with good stands. The second date of seeding of cold resistant strains of corn and small grains for hay has been made. Fallow blocks are now being plowed, and cultivation of grass rows is being continued.

Mr. L. A. Clark in charge of forage work of the Division of Forage Crops from Bozeman spent Thursday inspecting the Station and grass plantings. Other station visitors were County Agent Ralph Stucky of Fergus County and Mr. Glen Morton, Manager of the Pioneer Ranch Company of Lewistown.

Maximum temperature, 82°; minimum, 38°; precipitation, 0.62 inch.

HUNTLEY:

Temperatures were generally favorable throughout the week for crop development, and where moisture was plentiful considerable plant growth took place. Spring grains made marked progress but fall grains slowed down, and on the poorer cultural methods winter wheat showed some deterioration. Crested wheatgrass is now quite brown and dry on all plantings. Corn is emerging in spots and uniform stands cannot be expected until a good rain is received. A shower last night settled the dust and cooled the air. It may have been sufficient to soften crusted ground and permit alfalfa and sweetclover seedlings to push through.

Soybean varieties were planted during the week, but most of the field work centered around weed eradication. Roadways were lined out and cultivated, and row alfalfa plantings were cleaned up.

Maximum temperature, 90°; minimum, 41°; precipitation, 0.33 inch.

SHERIDAN:

Except for the first day and the extreme last of the week, temperatures continued high for the season over the entire week. Showers threatened almost daily, but there was no rain. High winds prevailed over the 18th and 19th, with a severe wind storm and considerable soil blowing the evening of the 19th.

Grain made good progress and still remains in good condition in the vicinity of the station. There have been numerous reports of firing in nearby sections, however. Grass and alfalfa on the station began to fire heavily the latter half of the week, and grass generally has almost ceased to make any growth.

Flax was sown the first of the week, and corn was planted. Flax sown the 8th emerged with a good stand, as well as other grain sown at the same time.

Maximum temperature, 90°; minimum, 36°; precipitation, none.

DICKINSON:

Local showers on four days have improved conditions for crops. These were light and wet the surface only. Winds between showers have dried the surface rapidly. Temperatures were high early in the week and much cooler at the close.

Grains have improved in appearance. Stands have thickened, but most fields are weedy. Grasses have greatly improved in growth and appearance since the showers. Good stands of garden crops have resulted. Corn on the rotations is beginning to emerge.

Silage corn, corn varieties and nursery, and an increase block of Falconer were planted.

Grasshoppers have hatched in greater numbers than in 1938, and some have now developed to a size that they are moving from the hatching areas. Part of some fields of small grains have already been eaten. Poisoned bait was available on the18th and was spread over the worst areas on the station. Only fair kills resulted since the weather was showery, cool, and windy. Some damage has resulted to grains and other crops on the station. It is believed that with frequent spreading of poison the hoppers can be controlled on the station during the next month, but as soon as migration of the hoppers begins the outlook is doubtful.

Maximum temperature, 89o; minimum, 34°; precipitation, 1.15 inches.

MANDAN:

Agronomy - The past week continued dry but temperatures remained reasonably cool. Three showers fell during the week. The wind blew hard on most days, and the air was filled with dust on the 17th. Soil drifting occurred in several areas. There was little soil drifting on the station.

Small grains are making little progress but are still in condition to make rapid growth with good rains.

All corn was planted early in the week. The rotations were planted on the 16th. There is little chance of corn coming up before a good rain.

Maximum temperature, 90°; minimum, 42°; precipitation, 0.13 inch.

Cooperative Grazing Experiment - The prairie was green early in the month but now is dried up, except on the lower places.

There is a good carry-over of grass in the pastures. Crested wheatgrass pastures are badly dried up. New seedings of grass are still alive but need rain badly.

Horticulture - A few light showers brought slight relief to the plantings suffering from drought. Rain is badly needed in the nursery and orchards. Aside from the drought, prospects would favor a good crop of fruit, as the trees passed the winter in good condition, bloomed profusely, and the set of fruit is good.

Budded stock was cut back and suckers were removed. The stand is good and there should be a good supply of fruit trees for cooperators next spring.

The second cultivation of the season is in progress. Spraying is scheduled for next week.

The topsoil in the field vegetable plots is getting drier and drier. Early planted vegetables which germinated sparsely, are beginning to dry up. There is no germination of later planted sorts. Asparagus and rhubarb are still holding their own and producing well.

Trees, shrubs, and hedges so far show but little effect of the drought. There was also very little winter injury. Physocarpus opulifolia and hybrid rugosas seem the only ones affected. Lilacs are still making a very good show on the grounds; especially the Persian lilacs. Other shrubs in bloom at the present time are Spirea Van Houttei, Lonicera tatarica, Crataegus pinnatifida, Viburnum lentago, Viburnum opulus sterile, and Cornus stolonifera.

Darwin tulips are very showy at the present, especially where some extra water has been applied.

Shearing of hedges was started during the week, and some cultivation of beds and groups has been in progress.

Arboriculture - Lining out of coniferous seedlings was completed the early part of the week. Part of the coniferous seed has been planted in beds. All nurseries and tree blocks have been cultivated. A small amount of American elm seed has been collected, and Chinese elm seed collection is in progress at the present time. Constant high winds have blown off most of the seed before it was ripe. Many Chinese elm trees have also been broken down. The lack of moisture is causing heavy losses in everything that was planted this spring.

Visitors of the week included Mr. G. N. Geiszler, Extension Soil Conservationist, State Agricultural College, Fargo, N. Dak. Mr. Albert A. Kokkeler of the W.P.A. Administration made a survey of office files for the Federal Archives.

BELLE FOURCHE:

The week was unusually warm and dry. Heavy banks of clouds frequently appeared in the sky, but they invariably faded away in a disheartening manner, accompanied by gusts of high winds and maybe a drop or two of rain. Wind velocities approached those of a tornado during a light shower on the afternoon of May 19, and again later in the evening of the same day. Crops and farm buildings in nearby localities were damaged by small twisters.

Only 0.18 inch precipitation has been received to date during May, as compared with the average for the month of 2.92 inches. The precipitation recorded from June 1, 1938 to May 20, 1939 amounts to 6.32 inches. This is considerably less than has been received in any previous 11-month period of June to April, inclusive, in the 31 years of record.

The spring grain which came up in a few scattered spots is making a fair growth, but winter wheat seeded in standing corn stalks is beginning to suffer from lack of moisture. Winter rye seeded in small grain stubble is burning badly and is attempting to head at a height of 4 to 5 inches. Grass and alfalfa are as dry and brown as in mid-winter.

Maximum temperature, 92°; minimum, 44°; precipitation, 0.03 inch.

ARCHER:

The weather during the week ending May 20 was warm and dry, however, a few local showers occurred. The station was on the edge of two such showers. Beyond the boundaries of the local showers the conditions are very dry.

At the station winter rye is starting to head. That seeded on stubble land is about a foot high and that seeded on fallow is a little taller with more foliage. Winter wheat is not so far advanced as the winter rye but is in better shape at the present time. The surface soil is so dry that it is difficult to get corn into moist soil, even with disk furrow openers. Crested wheatgrass is rolled badly and native grasses have taken on a droughted appearance.
In the lower elevations of this section grasshoppers are reported in great numbers. They have destroyed some fields of small grains thus causing re-seeding.

The last of the corn planting at the station will be accomplished to-day. All land to be fallowed in the dairy fields was tilled during the week. The alleyways in the experimental field were cultivated.

Mr. William A. Riedl of the University of Wyoming with a number of University students planted a number of corn hybrids at the station. Other station visitors were County Agent Louis Schilt and Oscar K. Barnes of the Soil Conservation Service.

Maximum temperature, 83°; minimum, 34°; precipitation, 0.16 inch.

NORTH PLATTE: (Report for the week ending May 13, 1939)

The weather for the week was mostly cool with a few light showers. No spring rains of any consequence have fallen so far this spring. There is very little available moisture in the sod land, and the grass has made little growth and is drying up. The winter wheat continues to look good, and the rye is heading.

The alleys and roadways were cultivated during the week, and corn planting was started. Several trees have been planted this spring on the dry land station. The trees planted last year survived the winter very well. The spring seedings of grass and legumes on the plots have emerged with good stands.

Maximum temperature, 87°; minimum, 34°; precipitation, 0.37 inch.

NORTH PLATTE:

A good rain of 1.12 inches fell at the table station during Friday night and 1.43 inches were recorded at the bench station. This is the most precipitation to fall in a 24-hour period since last September. The winter wheat on cropped land is short and has started to "fire". The yields will be reduced materially, even if good rains come during heading and ripening time. The wheat on fallow looks good and now has a chance of making an excellent crop. Mr. Baker, in charge of livestock at the station, made a tour of the State this week and reported that the condition of the small grain crop over the State is quite precarious. Several fields of wheat have been plowed up and will be planted to corn or sorghum.

Grasshoppers are very numerous again this spring and are moving from sod land into the plots. It will be a battle to prevent serious damage. Poison bran was spread during the week with apparently good results.

The corn was planted on the plots during the week, and basins were put in the lister furrows to prevent run-off. The rye plots were plowed under.

Dr. Duley and Russel of the S.C.S. were at the station this week to take care of their project. They have set up a recording rain gauge to supplement the regular weather instruments.

AKRON:

Two showers early in the week were relieving, but the storm situation cleared all too quickly with a temperature rising to 93° on Friday, which is the maximum for the current season. Current May rainfall is now 0.49 inch, and the following only 0.80 inch in April gives a good picture of the spring drought in this section.

Beans seeded May 2 in the date experiment emerged on the 25th, which is evidence of the generally cool temperatures which have prevailed up to this date and have been vital in continuing the agricultural outlook. The critical state of soil moisture exhaustion has already apparently been reached in winter wheat, and with sharply rising temperatures will shortly be apparent in the case of the spring-seeded cereals. However, normal and well distributed rainfall from now, through June, and early July could yet produce good average yields of most types of cereal grains.

Corn planting on the soil preparation strips was started and only a machinery break-down prevented its near completion. As it is, only the cereal nursery land will be seeded by this week-end. It appears that there may be plenty of moisture on previously worked stubble land to support corn emergence. Rotation fallow plots were plowed, or otherwise initially worked during the week. Thistle growth indicated this action. This land turned nicely, but the surface was left mellow and likely to rapidly lose whatever moisture was present.

James E. Morrison, Assistant Director of Extension, called Friday relative to a spring ripening crop field day.

Maximum temperature, 93°; minimum, 36°; precipitation, 0.40 inch.

COLBY:

This week continued the dry weather which has prevailed for over a month. Nearly every day there were local showers over this part of the State, but the fall of moisture was very light. Drying winds prevailed most of the times between showers. Friday toward evening there was considerable soil blowing on bare fields that have not been worked properly.

Winter wheat continues to deteriorate. The pale western cutworm is still present in very large numbers, destroying stands of both wheat and barley. The worms are numerous in all wheat fields, but seem to be doing the least damage on the best fields. In barley fields the severe damage is being done where barley was sown in wheat stubble. Besides cutworms, the brown mite, the red spider, and aphids, including the green bug, are present in numbers, especially the brown mite. Nearly all fields are beginning to show burnt spots, due chiefly to a lack of moisture, and partly to insect damage. The garden cutworms are thick in yards and gardens. Tiny grasshoppers are unusually numerous, also. Not much corn has been planted, because the cutworms have taken nearly all of the early planted corn.

The winter wheat on the DLA project is making fairly good growth, but the stands are getting more spotted and thinner every day, due chiefly to the pale western cutworm. None of the plots seem exempt. The spring small grains are growing fairly well, but some of the plots are showing yellowish spots. Pastures continue green.

The May plowing for fallow was done this week. There were almost no weeds and the ground was wet and turned up fairly mellow. Preliminary work was done with the oneway, duckfoot, and rod weeder on most of the corn and sorghum plots. Few weeds had begun to show up. The rye was turned under for green manure. The stands ranged from only a trace on the milo ground in rotation 153 to 30 and 40 percent stands, respectively, in rotations 152 and 151. The first heads were showing, and the plants were from 12 to 18 inches high. The ground was wet in rotation 153, but practically dry in the other two.

Maximum temperature, 90°; minimum, 43°; precipitation, 0.14 inch.

HAYS:

The weather has been generally part cloudy. Local showers have occurred within the county but there was little rain here. The temperature was mild except for 90° maximum for two days.

Winter wheat continues to deteriorate, especially that sown on cropped land, most of which has little possibilities for a yield that will more than pay for the harvest. Some of it will not do that. Some fields have already been given up and are being tilled.

The wheat on fallow is also deteriorating but still has possibilities for yields of from 10 to 20 bushels. It is very much in need of rain and must have it soon.

Barley and oats sown on cropped land are from 2 to 6 inches high and for the most part are brown from drought. On fallow they are still green and attempting to head but need rain badly. Spring wheat is in much the same condition. Peas have made little growth. They are from 4 to 6 inches high, or about the same as reported May 8 except that they are burning more from drought. Bromegrass seeded this spring is suffering severely from drought and there seems little chance of survival for it. Alfalfa has not yet been seeded, because there has not been sufficient rain to make a seedbed possible.

The top soil is dry and in poor condition for preparation and seeding of row and feed crops. As a matter of fact no planting has been done because of the poor soil condition.

Pastures are brown and in very poor condition. Cattle are already being removed from some pastures.

With the prospects of a wheat crop almost gone, pastures failing, and no condition for planting feed crops, it really is a serious condition that the farmers are facing at this time.

Maximum temperature, 90°; minimum, 44°; precipitation, 0.05 inch.

TUCUMCARI:

The week was comparatively warm and calm. Showers on three days totaled only 0.28 inch precipitation.

Row crop planting in this county is progressing rapidly. Wheat on the plains is very spotted, even the best showing need of immediate moisture.

Work included preparing fields for planting, cleaning tree rows, repairing farm machinery, and placing rock dams in tree rows. Planting will no doubt be begun next week.

Visitors included J. Stokeley Ligon of the Biological Survey; Messrs. Allen, Burrus, and Miles of the S.C.S.; Wunsch of the Extension Service; and McMains of the B.A.E.

Maximum temperature, 95°; minimum, 45°; precipitation, 0.28 inch.

DALHART:

The week saw the completion of the spring plowing, except for two small areas to be plowed later. A good job of plowing was done but the furrow slice has pretty well dried out. There is now insufficient moisture to warrant planting some of the plots that are normally planted at this season. The subsoil is still supplied with moisture. Native grass on the ranges is much further advanced than normally.

The trees have leaved out much thicker than during the preceding six drought years; there cannot be more than enough moisture to carry them to the normal hot-weather period. Wheat on the station after a month of struggling hopes is now definitely gone. Winter rye could not make more than a bushel or two at the best. A trip to the wheat country east and south was a surprise. A similar trip three weeks before showed severe damage on several fields. Now fully 50 percent of the fields give promise of a fair crop.

The grapes on the station are putting out fair to good seasonal growth. Some of the better varieties show a good set of bunches.

Until today the wind velocities had been low for 10 days. We now know that there is plenty of loose soil.

Maximum temperature, 89°; minimum, 43°; precipitation, 0.05 inch.

BIG SPRING:

Another hot, dry week has passed with nothing but a few thunder heads to encourage the farmers. About half the county has received sufficient rains to supply good planting moisture, and fairly good stands are reported. The area surrounding the station remains so dry that it is doubtful if good stands can be obtained.

The May 15 varietal date of grain and forage sorghums was planted as scheduled. These varieties are slowly emerging, and there may be sufficient soil moisture to obtain comparable stands although it is doubtful. Cowpea, soybean, and peanut varieties were also planted. The cowpea varieties are starting to emerge, but the soybeans and peanuts are not showing any signs as yet. No attempt has been made to plant the cotton plots, as it is felt there is not enough moisture for emergence.

The rotation field has been staked, and the increase fields were cultivated during the week.

Maximum temperature, 102°; minimum, 56°; precipitation, none.

LAWTON:

Threatening storms appeared each day of the week, and many parts of the State shared in precipitation that varied from showers to soaking rains. Two showers were recorded in this vicinity, 0.05 inch on the 17th and 0.15 inch on the 19th, and drought conditions continue with but little change.

Heading of wheat is completed on those rotation plots that produced that much growth. Wheat on disked cowpea ground, rotation 200; on continuous cropping seed bed No. 1, late fall plowed; seed bed No. 7, disked at seeding time; and seed bed No. 10, listed and manured, did not produce enough growth to reach the heading stage. Yields on a good many other plots that can be harvested are still problematical with the odds against such operations. In the wheat variety test, grown on basin listed fallow, fair yields are possible. Abandonment of wheat on surrounding farms is very high. Only a few fields will likely be harvested.

Nearly every one is still hoping for a small yield of oats, but such hopes are rather pitiful. Sixteen acres of spring seeded oats on the station fields were cut with the binder by using the platform canvas only. This method dropped the crop in a windrow that could be picked up with a hay rake and used as hay. It is estimated that about 4 loads will be obtained from the entire acreage. Three strains of Coker oats in the winter seeding tests will be mature by the 22nd. Other varieties are approaching maturity quite rapidly.

Planting of cotton and sorghum projects continue to be delayed by the lack of moisture.

Maximum temperature, 94°; minimum, 52°.

WOODWARD:

The winter wheat crop on the station is approaching a critical condition. The rain of last week together with relatively cool weather this week enabled most wheat to head. The plots on fallowed land are for the most part fully headed, but those on cropped land are heading with difficulty. While practically no actual firing has occurred, the moisture supply is nearly exhausted and a few hot days could cause serious damage.

The general appearance of the station is probably the best it has ever been at this time of the year. There has been enough rain and enough cool weather so that trees, shrubs, and grasses have a fresh green color. The iris are past full bloom but are still showy. Roses and many of the native plants are in full bloom.

Seasonal work consisted of plowing under winter legumes, performing the May 15 mowing on sagebrush pastures, planting a cactus garden, removing the Burmuda grass from the lawn in front of the office preparatory to resodding with buffalo grass, sprouting and spraying grapes, and transplanting grasses.

Simon E. Wolff and L. E. Griffith of the Section of Soil Conservation Nurseries, and D. E. Stephens, Coordinator, were official visitors.

Maximum temperature, 83°; minimum, 47°; precipitation, 0.12 inch.

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MAY 27 1939

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REPORT FOR THE WEEK ENDING MAY 27, 1939.

HAVRE:

Rainfall totalling 0.90 inch during the week, attended by cool weather much improved the outlook for crops and pastures. Precipitation was sufficiently heavy to wet the ground beyond the depth of planting, and grain which has been in dry soil for several weeks is now germinating.

Flax was planted in the tillage method field, and various seedings of alfalfa and grasses were made. With the exception of corn on fallow which emerged uniformly, all corn plots were harrowed to break up clods and level the seedbed earlier prepared when conditions were rather unfavorable. Several roadways having washed considerably in recent years were plowed, levelled, and sown to winter rye. Some shop work was also accomplished in providing suitable hitches for certain implements now drawn by the plot field tractor.

Cows and calves have been turned into winter rye pasture in the E-2 field, yearling and two-year-old heifers being put on native range in the lake bottom.

Visitors included Director Clyde McKee, R. T. Clark and Ralph McCall of the Animal Husbandry Department, Montana Experiment Station; and J. R. Quesenberry and A. L. Baker of the U. S. Range Station, Miles City.

Maximum temperature, 79°; minimum, 38°; precipitation, 0.90 inch.

JUDITH BASIN:

Temperatures during the week were cool for this time of the year. Precipitation for the month is about normal. Damaging frost was reported in some sections.

Spring grains seem to have adequate moisture for the time being, but fall grains are using the available moisture rapidly.

Pastures and grasses are exceptionally good and making excellent growth.

Late sown plantings have been made during the week: Corn dates, sweetcorn varieties, sorghum varieties, and garden plantings.

Fallow plots in the rotations are being plowed.

Visitors included Director Clyde McKee, Dr. R. T. Clark, E. R. McCall all from Montana State College and J. R. Quesenberry and A. L. Baker of the U. S. Range Experiment Station of Miles City, and Mr. C. C. Starring of the Soil Conservation Service of Great Falls.

Maximum temperature, 75°; minimum, 30°; precipitation, 0.13 inch.

HUNTLEY:

Good rains during the week have greatly improved the immediate crop outlook in local dry farming areas. One shower falling as an almost continuous drizzle over a period of 30 hours and amounting to 1.20 inches was especially beneficial as no run off occurred and evaporation was low. This precipitation following closely the 0.33 inch received at the end of the previous week penetrated below the depth of planting corn on all plots examined and should greatly improve the stands of that crop.

Minimum temperatures were low enough to freeze ice on puddles one night during the week, but no injury to crops on the dryland fields was observed. Some frosting of tomatoes and other tender plants was reported from nearby gardens.

Field work has consisted of duckfooting and grading roads, hoeing fence rows, and planting soybeans, sorgo and Sudan grass in the pasture plots.

Maximum temperature, 79°; minimum, 30°; precipitation, 1.33 inches.

SHERIDAN:

The drought that has prevailed over this section throughout the most of May was effectively broken for the present by rain extending over a period of about 20 hours from the evening of the 23rd to the afternoon of the 24th. A total of 2.01 inches of rain was received with practically no run-off. Temperatures were moderate over the entire week, but wind movement was high for this section over the first of the week. All grass and alfalfa were fired badly, except in favored locations, by the time rain was received, and some grain was beginning to fire. Hay probably will be short anyhow, but pasture has improved immeasurably and should continue good for some time.

Flax, except for 3 plots in the rotations on spring plowing, emerged the first of the week. Corn planted the 16th is just beginning to emerge.

Roadways were lined and rotation alleys cultivated the first of the week. Work since the rain has consisted mainly in hauling manure, repairing the fence around the station, and hoeing Soil Conservation grass rows sown last fall. Grasshoppers are beginning to appear in large numbers in some spots, and poisoning operations probably will be necessary soon.

Maximum temperature, 78°; minimum, 34°; precipitation, 2.01 inches.

DICKINSON:

Cold, cloudy weather was accompanied on the night of May 22 by a rain of 1.09 inches. This was followed by 0.21 inch the next night and by three cloudy and cool days. This water soaked into the soil well but there was some run-off.

Grains have grown well the latter part of the week. Stands have thickened and height has increased. Winter rye is beginning to head at about 15 inches in height. Winter wheat stands are the best for several years. Flax stands are also better than in recent years. Corn is still coming up, as some of the seed had lain dry until the rains. Grasses have made a rapid recovery since the rains. Crested wheatgrass, Elymus junceus, and Stipa comata have started to head. Poa bulbosa in natural stands was fully headed a week ago.

A natural stand of Elymus junceus has presisted at this station for 20 years or longer. Apparently this grass, like Poa bulbosa, was introduced in alfalfa or other seed of Eurasian origin during the early years of the station. Recorded introductions of Elymus junceus are said to have been much more recent.

Grasshoppers are still thick in places and are now damaging crops extensively. Cold rainy weather has caused them to be inactive most of the week and has hindered effective poisoning. Some poisoned bran is being spread every day when conditions permit.

Visitors at the station were Dr. H. C. Hanson, Donald Hay, M. M. Hoover, A. D. Stoez, and Wayne Austin.

Maximum temperature, 70°; minimum, 38°; precipitation, 1.32 inches. Precipitation May 1 - 27, 2.79 inches. Precipitation January 1 - May 27, 5.65 inches.

MANDAN:

Agronomy: The week has been generally cool and cloudy with generous rains - 1 inch on the 24th and ½ inch on the 26th - coming almost in the "nick of time". With April and the first three weeks of May deficient in rainfall and above normal in wind and temperature, it began to look like another season such as 1934 and 1936. Grains on fall plowing were already suffering acutely from deficient moisture, and there was prospect that corn emergence would be spotted on account of dry surface soil. Flax seeding had to be delayed because of dry seedbed.

Examination of the soil for depth of wetting showed that the rains of the week had penetrated 10 inches on continuous fall-plowed wheat and a couple of inches deeper on spring plowing and on corn stubble land grains. Comparative average heights of wheat on continuous fall and spring plowed wheat were 3 inches and 8 inches respectively.

Russian thistles and wild buckwheat are the predominating annual weeds so far. One plot of wheat on duckfoot fallow has a heavier stand of wild buckwheat than of the crop itself.

Maximum temperature, 79°; minimum, 43°; precipitation, 1.61 inches.

Cooperative Grazing Experiment: All pastures have been markedly benefited by the rains of the week. Areas which were entirely brown before are now showing tinges of green. However more rains must come soon, for depth of wetting in the heavier soil of the pasture experiment is not over 6 inches. Such soil moisture will soon be lost through evaporation unless it is pushed down by further precipitation.

Horticulture: Spraying of orchards and small fruits has been in progress during the week. The recent rains caused some delay, but the work was resumed today. Prospects for a good fruit crop, especially of stone fruits and berries, seem excellent this year. There is a fine "set" and after the nice rains just received, the crops ought to mature well. Tomato, cabbage, cauliflower, egg plant, and pepper plants were set out in the acre garden and variety plots during the week. Planting of the ornamental beds on the station grounds, excluding geraniums, coleus, and cannas, was completed the early part of the week. Grading and seeding of new crested wheatgrass lawns on the grounds was done on Friday and Saturday. The older lawns are now picking up very nicely, and trees and shrubbery are taking on a much fresher appearance since the recent rains. Spirea Van Houttei and snowball are at their best at the present time.

Arboriculture: A few pounds of Chinese elm seed were collected the early part of the week. Most of the crops was lost through constant high winds. The American and Chinese elm nursery has been replanted. The previous planting was lost by drought conditions.

Basal shoots have been removed from the pruning experiments, and a number of boxelders which previously killed back have been cut to one stem. Precipitation during the week has created new hope for growing some crops this year. While much of the nursery and stock planted this spring has become a total loss, there is now a prospect for some stand where all the seed had not germinated, and where planted stock was protected from desiccating winds.

Mr. Albert Kokkeler, an official of the W. P. A. Historical Records Survey, inspected the files of the Station on Monday, 22nd.

Dr. M. M. Hoover, Dr. A. D. Stoesz, and Wayne W. Austin visited the station May 25 and 26.

BELLE FOURCHE:

Cool, cloudy, unsettled weather prevailed practically all week. The heaviest rain of the season occurred the night of May 23, when 0.36 inch precipitation was received. Another 0.06 inch was recorded from light showers during the following night. Moisture penetrated the dry surface soil to a depth of only 1.5 inches and was of little value to crops. Small grain was temporarily revived by the rain and cool weather, and crested wheatgrass fields assumed a greenish tinge.

Maximum temperature, 79°; minimum, 36°; precipitation, 0.42 inch.

ARCHER:

The weather during the week ending May 27 was rather cool. A cold rain of 0.42 inch occurred during the night of May 24. The rain relieved the condition of grasses and winter cereals. The cool weather which followed protracted the beneficial effect of the rain, which consisted mostly of checking deterioration. Considerably more moisture is needed immediately to promote the growth of these crops.

Station activities consisted of tilling the fallow plots; duckfooting the potato, bean, and millet plots; and digging post holes preparatory to fencing for the pasture experiment. The planting of potatoes is in progress.

Director W. L. Quayle of the University of Wyoming and C. S. Llewellyn and Oscar K. Barnes of the Soil Conservation Service were station visitors.

Maximum temperature, 78°; minimum, 36°; precipitation, 0.44 inch.

NORTH PLATTE:

Cool, cloudy weather prevailed throughout the week. Light showers fell on a few days, and Friday and Saturday gentle showers amounting to nearly an inch were recorded. The winter wheat is mostly headed, and the recent rain will aid it in filling. The wheat on cropped land made a good recovery after the rain of last week, but the yield at the best will only be fair. The oats are heading, and barley looks very good.

All the corn at the table station is planted, and that in the D. L. A. plots has emerged to a good stand. Corn was listed in the basin listed project.

Maximum temperature, 90°; minimum, 52°; precipitation, 0.83 inch.

AKRON:

The real news of this week is the long looked-for general rain of consequence. The Thursday, Friday, and Saturday morning readings of precipitation were 0.02, 0.90, and 0.40 inch, respectively.

The rain was at least 10 days too late, nearly all agree, but has aroused hope for the harassed barley and oats, and has placed the surface in excellent condition for seeding corn, the sorghums, beans, and the millets. Much winter wheat is beyond more than a feeble effort at recovery, but most spring grains had only begun to wilt sharply. They have not tillered appreciably and are now ready to start heading. On the hard lands there will now be an active race between the crop and the established thistle.

Temperature of 97° just prior to the storm period is probably near the all-time high, since May has not produced a 100° reading in the 31-year period.

Small grasshoppers are present in myriad numbers everywhere. Preparations are complete for starting the grasshopper poisoning campaign early next week. Rotation corn plots were worked where necessary and staked preparatory to seeding. First corn planted recently on the cereal nursery ground is emerged by this week end.

Sod grasses are yet free of weed infestation in contrast to the experience at this time the past few years. There is some hope that there was enough moisture to germinate but not enough to sustain life in these weeds, in which case this spring drought might have its bright side.

Maximum temperature, 97°; minimum, 42°; precipitation, 1.32 inches.

COLBY:

Much needed rains fell throughout this section of Kansas this week, soaking the surface soil and putting an end for the time being to the drought which had become very serious. Hot, windy, and dusty weather which prevailed up to Thursday was rapidly exhausting the soil moisture and drying up the wheat and spring small grain crops. In the case of the spring small grains the drying was chiefly of the lower leaves, but in many of the best winter wheat fields the entire crop was burned almost beyond recovery. All small grains are beginning to head short.

Cutworms are still present in numbers but are not doing so much damage as earlier in the season and not so much as was done by the dry weather before the rains fell. The damage by drought on the Dry Land Agriculture plots has not been as serious as that of the cutworms because the stands are generally poor. The Flynn barley on the plots does not seem to be standing it as well as the spring wheat and oats. It is starting to head very short. Cool weather the last three days has helped some.

The corn plots were planted Thursday. The ground was in excellent condition as to tilth and moisture, except that the spring plowed plot, MC A, was very hard on top. There had been almost no rain since the spring plowing was done April 24. Cutworms have been damaging corn that was planted earlier.

Maximum temperature, 99°; minimum, 49°; precipitation, 1.14 inches.

HAYS:

The weather has varied between wide extremes. The first few days were very warm, dry, and windy and were extremely severe on winter wheat as well as the other small grain crops. The severity of the condition is indicated by the fact that the evaporation record showed a loss of more than an inch of water by evaporation in two days. This condition was tempered by a small rain that occurred during the afternoon and evening of May 25 and lower temperatures yesterday and today. It is cloudy and threatening today.

During the week Canada field peas sown for green manure were plowed under. Considerable poison bran mash was spread for grasshoppers. Some tillage work was done for weed destruction and Buffalo sod was laid in the mouths of eight road ditches to prevent water erosion.

Maximum temperature, 106°; minimum, 54°; precipitation, 0.60 inch.

The wheat. oats, and barley that were burned so badly show little or no improvement thus far.

GARDEN CITY:

Temperatures the fore part of the week were high, and there were two consecutive days of 102° maximums. Two rains fell the latter part of the week, one on Thursday and one on Friday, totaling 0.66 inch.

Dust storms occurred on two days. One was termed "bad" and the other "very bad". The worst part of these lasted only a few minutes.

Field work consisted of springtoothing those plots on the basin lister project which are to be planted to milo this year. Soil samples were taken on the M. C. wheat plots A, B, C and D.

Maximum temperature, 102°; minimum, 48°; precipitation, 0.66 inch. Precipitation thus far this month is 1.36 inches.

TUCUMCARI:

The week opened unusually warm, but the past three days were very cool. No precipitation was received, and ranges and trees indicate that moisture is needed. Precipitation has been normal for the year to date, with grass making rapid growth, but additional rain is now urgently required.

Work consisted of field cultivating nearly all crop land, planting peanut plots and cotton nursery rows, planting increase Sudan grass, and general cultivation and hoeing of tree rows.

Farmers have rushed row crop planting, and many fields show seedlings emerging. Station planting has not been begun, aside from the small plantings listed above. Three days of high temperature and strong wind early in the week were extremely high in evaporation (1.491 inches) and it is feared that some difficulty will be experienced next week in planting sufficiently deep with surface planters to insure prompt germination.

Wheat prospects are deteriorating rapidly on the plains; potential yields have no doubt been reduced 50 percent in the past week.

Maximum temperature, 96°; minimum, 45°; wind velocity, 7.7 m. p. h.

DALHART:

Work during the week has consisted principally in the finishing of the plowing for row and feed crop planting and the hoeing of weeds from tree plantings. Other work has been the hauling of blow soil from tree and shrub plantings and the planting of the corn, pinto bean, and soybean rotation plots. It is doubtful if there is sufficient moisture in the surface soil to give uniform germination of all the crops and plots planted.

Several days were dusty during the week and for about an hour on Thursday a high wind transported immense quantities of soil and debris.

While planting conditions are poor, some farmers are going ahead with the planting operation. Thus in spite of the fact that there seems to be insufficient moisture in the surface soil to insure uniform stands, some planting is being done because weeds are reaching the size on some fields that working the soil now is nearly compulsory in order that subsoil moisture may be conserved.

Maximum temperature, 95°; minimum, 47°; precipitation, 0.03 inch.

BIG SPRING:

Local rains were received in the county during the week, which relieved the unusually hot weather. The station received 0.60 inch, while the rain gauge at the airport 2 miles west recorded 1.37 inches. Rains in other parts of the county varied from a mere trace to 2 and 3 inches. Maximum temperatures reached a new high for the season when 106° was recorded for May 20 and 104° on the day following.

This rain was received too late to help the wheat plots, as they had been burned beyond recovery. The cowpea varieties have emerged to good stands, but soybeans are coming up spotted. With few exceptions the sorghum varieties are emerging to fairly uniform stands.

All station cotton was planted during the week; this consisted of varieties, spacing, and the plots in the rotations. Peanuts and Sudan grass in the rotations were also planted. Other work consisted of knifing and duckfooting increase fields to kill weeds.

Maximum temperature, 106°; minimum, 56°; precipitation, 0.60 inch.

LAWTON:

Scorching south winds accompanied maximum temperature of 107° on the 22nd, 103° on the 23rd, and 98° on the 24th. The temperatures of 103° and 107° are the highest ever recorded in May at the station.

Native and cultivated grasses and small grains on ordinary tillage showed intense injury from such weather. Wheat and winter barley on basin-listed fallow showed but little reaction and will produce fair yields. About one half of the winter oats and winter barley have been harvested, and the remainder is about ripe. Lodging in the winter oats variety test was very heavy following the high temperature and hot winds. Seven tons of oats hay were harvested from 16 acres of spring seeded oats. Early Blackhull wheat is the only variety that is approaching maturity.

A gentle rain of 0.70 inch on the 25th brought temporary relief to surface moisture conditions, and subsequent temperatures have been quite moderate. Field preparations for planting sorghum and cotton projects have been completed and planting will begin on the 29th.

A field day for wheat growers interested in the Oklahoma Wheat Improvement Program was held on the station May 24th. About 80 farmers attended the meeting which was held in the field. Short talks were made by milling and elevator representatives and the County Agent Dr. K. S. Quisenberry discussed the analysis and classification of the plots grown from seed furnished farmers. Although the attendance was not large, a pretty live interest in the problems of quality and production was manifested by the farmers that were present. Approximately 80 farm samples of wheat were grown. One plot graded A and 3 plots graded B. All others fell in the C class, by reason of varietal mixtures, oats, loose smut, bunt, or unadapted varieties.

Station visitors during the week included Dr. K. S. Quisenberry, Mr. I. M. Atkins, both of Division of Cereal Crops and Diseases, and Dr. F. A. Fenton, Stillwater, Oklahoma; Mr. R. G. Dahms, station Entomologist, returned to duty from Manhattan, Kansas, on the 21st. Mr. Dahms has been working on a Ph. D. degree during the spring term.

WOODWARD:

The first three days of the week were hot, and by the middle of the week wheat plots were beginning to show injury. A desiccating wind all day Wednesday started all plots firing regardless of cultural treatment. By the end of the day practically all leaves except the top one or two were dead. Cooler weather followed by a shower stopped firing before the heads had been badly damaged. The wheat is still in condition so that it can produce an average yield with normal rainfall. But it cannot endure continued drought.

In the date of seeding tests in the Cereal project, the early seedings were injured beyond hope of recovery. Injury was severe even on the October 15 seeding, and the November 15 seeding was showing injury before the shower. From these tests it appears certain that most of the plots on the dry land project would now be near failures had not seeding been delayed until November.

It was necessary to water the grass seedings under irrigation to soften the crust and allow the plants to emerge. Other station work consisted of making replacements in the tomato experiments, cultivating windbreaks and blocks to be planted to sorghums, and leveling the lawn.

Homer Taff, a Senior at Oklahoma A & M, arrived on the 26th. He will assist with the crop rotations during the summer.

Maximum temperature, 102°; minimum, 54° ; precipitation, 0.36 inch.

PENDLETON:

Warm, sultry weather prevailed all week, with overcast sky most of the week. Each day conditions appeared favorable for rain, but no rain fell. Winter wheat in this section is still in fine condition and most of it is fully headed. The heads are a little smaller than normal, with two kernels per spikelet instead of three. Spring wheat is in the boot stage and is considerably shorter than the winter wheat, a good rain will be needed very soon to insure high spring wheat yields. Livestock men are still complaining about the lack of growth on the mountain ranges, lowland ranges dried up early, and it was necessary to move cattle and sheep to the higher ranges about a month ahead of the usual time.

Many of the grasses in the nursery have been harvested for forage yields, a few are about ready to harvest for seed. Crested wheatgrass has made about one half its normal growth this season, at present beardless wheatgrass and big bluegrass are the best appearing grasses in the nursery. Alfalfa varietal trials and alfalfa and grass mixtures were cut this week; yields will be low. Rotation corn plots were thinned this week. Canning and freezing peas are making a very fine growth in spite of the lack of rain, some varieties are about 3 feet tall.

Maximum temperature, 82°; minimum, 35°; precipitation, none, for May, 0.41 inch.

- - - - NOTE - - - -

Technical Bulletin 637, Subsoil Moisture under Semiarid Conditions by John S. Cole and O. R. Mathews, was received from the printer June 2. Franks had been furnished for a supply to be sent to each field station.